

Application No. 10/594606
Response to the Office Action dated September 9, 2008

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Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Cancelled)

2. (Cancelled)

3. (Cancelled)

4. (Cancelled)

5. (Cancelled)

6. (Currently Amended) A process for producing an article with a silica-based film by a sol-gel process, the article including a substrate and a silica-based film that is formed on a surface of the substrate and substantially free from an organic substance,

the process comprising:

applying a film-forming solution for forming the silica-based film to the surface of the substrate so that a thickness of the silica-based film exceeds 300 nm, and

heating the substrate to which the film-forming solution has been applied,

wherein the film-forming solution contains silicon alkoxide, strong acid, water, and alcohol;

the silicon alkoxide has a concentration of more than 3 mass% and less than 9 mass% in terms of a SiO₂ concentration when silicon atoms contained in the silicon alkoxide are expressed as SiO₂;

Application No. 10/594606
Response to the Office Action dated September 9, 2008

the number of moles of the water is at least four times and at most ten times the total number of moles of the silicon atoms contained in the silicon alkoxide; the strong acid has a concentration in the range of 0.001 to 0.2 mol/kg in terms of the molality of protons that is obtained assuming that the protons have dissociated completely from the strong acid; and

the substrate is heated at a temperature above 100 150 °C; and
the silica-based film does not separate from the substrate after the Taber abrasion test prescribed in Japanese Industrial Standards R 3212 that is carried out with respect to a surface of the silica-based film.

7. (Cancelled)

8. (Original) The process for producing an article according to claim 7, wherein the film-forming solution is applied so that the thickness of the silica-based film is not less than 350 nm and less than 1 μ m.

9. (Cancelled)

10. (Original) The process for producing an article according to claim 9, wherein the substrate is heated at a temperature above 150°C and not more than 400°C.

11. (Original) The process for producing an article according to claim 6, wherein the silicon alkoxide contains at least one selected from tetraalkoxysilane and a material made by polymerization of tetraalkoxysilane.

12. (Original) The process for producing an article according to claim 6, wherein the substrate is a glass plate or a resin plate.

13. (Cancelled)

Application No. 10/594606
Response to the Office Action dated September 9, 2008

14. (Cancelled)

15. (Previously Presented) The process for producing an article according to claim 6, wherein the silicon alkoxide has a concentration of more than 3 mass% and not more than 5 mass % in terms of the SiO_2 concentration;

the number of moles of the water is at least four times and at most eight times the total number of moles of the silicon atoms; and
the strong acid has a concentration in the range of 0.001 to 0.05 mol/kg in terms of the molality of protons.